Laboratory 5
Using Serial Ports

Due Date: ------ Name:_____

Points: 100 Points
Work individually.

Objective: The purpose of this laboratory is to develop your understanding of using UARTs on the PIC32MX microcontroller. In this lab, you will also apply what you have done on previous labs using digital I/O. You will be using c function libraries that are included using the *#include <plib.h>* command in your c source file. The c library reference manuals are posted on UNM Learn. UART sample codes are also posted on Learn.

Activities: For this assignment, you will write a **main** routine which accepts input characters from UART2. You will use the TeraTerm program to emulate a terminal, on which you will type the input characters that are transmitted to the MX7 board. You will use a data transmission rate of 9600 baud.

Your program will convert all upper case alpha characters that are input from upper case to lower case and echo them back to the terminal. Any lower case characters that are input will be echoed back to the terminal without modification. Similarly, any special characters and numbers will be echoed back without modification. At the same time, your program will count the number of characters that have been received from the terminal and provide a running count indication using the 8 LED module (Modulo 256).

Demonstrate that your program will count the number of characters correctly and convert the upper case alpha characters.

Notes: Is it essential that the USB peripheral module (pmod) be connected to the Chipkit board using a UART crossover cable. Also, verify that the Chipkit board jumpers are configured properly to ensure that the pmod board is powered. You can test the wiring and terminal configurations using the sample codes.

Documentation: Your lab activities must be documented following the guidelines that are provided on the course UNM Learn site. You must also demonstrate that your project functions properly to one of our TAs, who will then sign your copy of this assignment sheet. They will be available in lab per the schedule that was announced earlier.

Reference Information:

- Cerebott MX7™ Board Reference Manual
- PIC32MX5XX/6XX/7XX Data Sheet
- PIC32 Peripheral Libraries for MPLAB C32 Compiler

Suggestion: Keep all of your files on a USB memory device as there is no guarantee that any information you store on lab machines will be preserved. On occasion, the machines must cleaned and reloaded, so any information stored on them will be lost.